

Abstract of the Disclosure

A high frequency power amplifier that can improve an efficiency of an operation of a transistor without limiting any input-side higher harmonic load of an impedance matching circuit to a short-circuit load, and can increase a quantity of reflection of higher harmonics. By adjusting line lengths L1 to L5 and line widths W1 to W5 of the signal lines 1 to 5, a 2nd higher harmonic can be adjusted to be an open load (a reflected phase angle of  $\Gamma_{in}$ :  $0 - 90^\circ$ , the quantity of reflection:  $0.6 - 1.0$ ), and a 3rd higher harmonic is adjusted to be a short-circuit load (the reflected phase angle of  $\Gamma_{in}$ :  $110 - 270^\circ$ , the quantity of reflection:  $0.6 - 1.0$ ). By this optimization of an input-side higher harmonic load of the impedance matching circuit, an efficiency of transistor operation can be improved. By disposing a higher harmonic processing circuit 12 of higher orders closer to a transistor 1, there is provided a high frequency power amplifier with a shortened line length between the higher harmonic processing circuit 12 and the transistor 1, and increased quantity of reflection of higher harmonics.

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